



iMRS prime within the scope  
of elite and mass sports

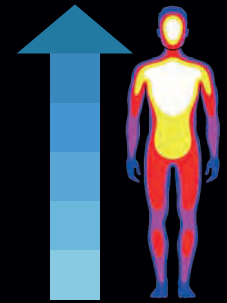
# Areas of Application:



Performance and endurance enhancement



Active regeneration



Passive warm-up



Faster wound and bone healing



Pain relief



Mental training  
(Brain Wave Entrainment)



HRV-Monitoring

Whether an individual is involved in sports for living a healthy and active lifestyle, indulging the passion for certain disciplines, or earning a living as a pro athlete, they face more or less the same challenge: the strive for personal perfection which requires consistent exploration of personal limitations by creating and following certain training and competition routines, always in view of the desired results.

Sports science is one of the fastest-growing disciplines due to increasing interest from professional teams, elite individuals, amateur athletes and weekend warriors to improve performance levels by utilizing the latest scientific findings, modalities and technologies as they work toward achieving their goals and aspirations. In conjunction with the rapid development of digital tools such as systematized collection and evaluation of comprehensive data, apps, sensor technologies, advanced video and computer analyses, today`s approach to perform at the highest possible level becomes a complex, sophisticated and at the same time very rewarding task, if applied properly and responsibly.



Another focus in this context is the correlation between enhanced performance and regeneration, an important consideration in the prevention of fatigue-induced physical injuries and mental disorders.

The iMRS prime multidimensional, multimodality PEMF treatment system provides an effective tool to address these concerns through a medically certified, proven, efficient, safe and comprehensive therapeutic approach.



# How iMRS prime benefits sports performance and endurance

The main method of enhancing athletic performance and endurance is to increase and optimize body and brain functions to an individual's limits. iMRS prime systems for home use are capable of increasing such performance levels in all athletes in a 100% natural, legal and safe way, without any limitations or restrictions to a healthy person. Along with a consistent and tailored training plan before, during and after a competition, the human body also needs to commit sufficient time and attention for passive and active recovery. This particular aspect has been severely undervalued for a long time, but has lately become an important and indispensable factor. iMRS prime systems contain the following technologies and applications to provide effective and comprehensive solutions for achieving increased performance as well as active regeneration in any sport:

## Low-intensity, low-frequency "Pulsed Electromagnetic Fields" (PEMF)

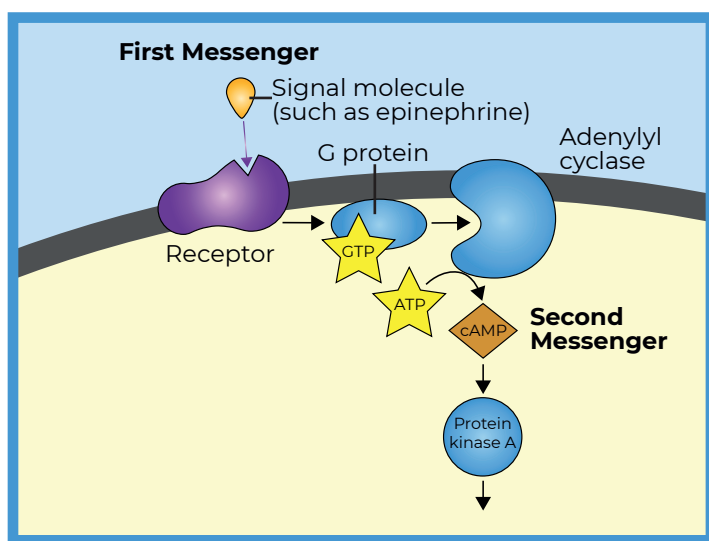
iMRS prime systems are medically approved for the increase of blood circulation. Better circulation leads to an increase in cellular oxygenation and accelerated regeneration of muscle tissues. This process also improves the breakdown of excess lactic acid, leading to a faster recovery of full physical ability. These beneficial effects take place in nearly every cell in the body during a whole-body application as the iMRS prime distributes electromagnetic exposure to all tissue structures.



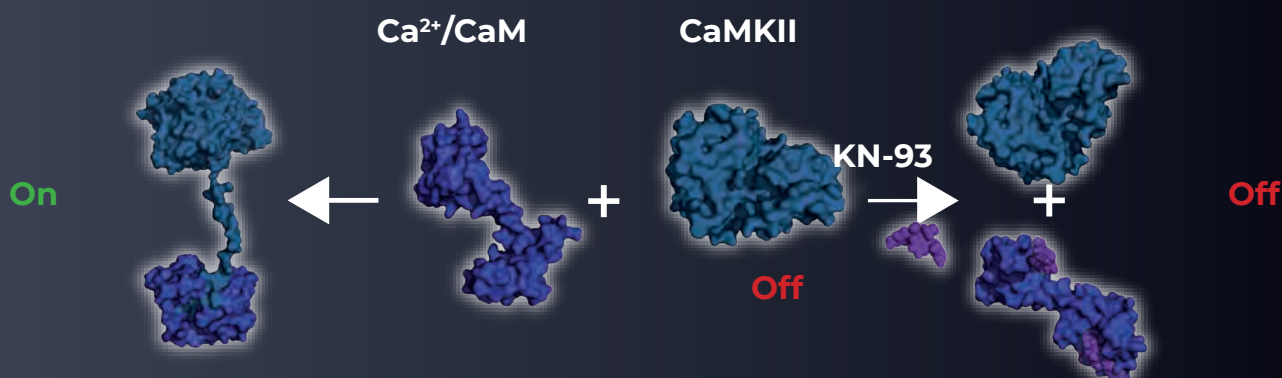
**Effect:** The iMRS Prime accelerates regeneration after physical activity, reducing recovery time and risk of injury, thus allowing you to train harder, perform better and compete more often.

Another remarkable feature of PEMF therapy is the receptor effect. Human cells are equipped with millions of receptors which allow them to identify information through primary messenger substances. If the receptor can be excited by means of primary messengers, such as hormones, neurotransmitters or specific electromagnetic patterns, a secondary messenger substance, called cAMP (cyclo-AMP), is formed inside the cell. cAMP is a jack of all trades that orders the production of many valuable substances (i.e., proteins) that activate, improve and optimize cellular functionality. One of the most important messengers in the interior of an organism is  $Ca^{++}$  (Calcium ions), where “++” denotes an especially positively charged particle. If a cell is excited by a first messenger (hormones, neurotransmitters or electromagnetic fields), it opens its ion channels, allowing  $Ca^{++}$  to be absorbed and increasing calcium concentration inside the cell. This process triggers a variety of action potentials, such as:

- Converting nerve impulses into muscle activity
- Release of hormones
- Activation of enzymes
- Inhibition of inflammation and allergenic effects

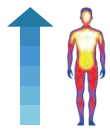


Calcium also activates a very specific enzyme called “calmodulin-dependent protein kinase” (CaMK), which plays an important role in cardiovascular health and the mediation of inflammation. Calcium is normally released when the muscle cells receive the message to contract the nerve cells. From this perspective, every muscle movement promotes protein kinase production. This consequently causes the production of additional protein, which forces the mitochondria to multiply in larger numbers resulting in higher production of ATP (adenosine triphosphate).



ATP is known as the universal cellular fuel in the human body. Everything we consume (carbohydrate, fat, sugar, protein, trace elements etc.) is broken down into its chemical constituents outside the cell and floats around in the form of ions. After being recognized and transported into the cells, it is converted by the mitochondria into the substrate ATP. Every energetic process throughout the many body systems is powered by means of ATP. Whenever ions get “excited” by specific electromagnetic fields (low-pulsed PEMFs), messenger substances send out a call for help to produce more ATP inside the cell. Increased ATP production translates to more energy to fuel athletic performance.

**Effect:** The utilization of iMRS prime PEMF technology enables you to initiate, support, enhance and improve a variety of cellular functions in order to increase the production of ATP, while creating and maintaining a healthy environment within your entire cellular structure. This process is a natural catalyst for improving athletic performance level in every sport for every athlete!



## Passive warm-up

To prevent injuries caused by “cold” muscles, joints and tendons, athletes usually perform a particular stretching and warm-up routine prior to training or competition. Based on the cumulative effects of PEMF therapy, this process can be supported and improved by employing an iMRS prime session prior to regular physical warm-up routines. This additional measure not only increases competition readiness but furthermore minimizes the risk of potential muscle-, joint- and tendon-injuries caused by lack of warm-up routine. Preventative benefits can be further improved by utilizing the hybrid whole body mat of the iMRS prime, which emits a powerful combination of PEMF frequencies and far-infrared rays simultaneously.

**Effect:** An 8-16 minute pre-warm-up application with the iMRS prime significantly reduces the risk of potential muscle, joint and tendon-injuries, preparing the entire body for optimal competitive performance!





## How iMRS prime benefits treatment of sports injuries

From a holistic point of view and based on scientific research, consistent applications using the iMRS prime in the case of typical sports injuries (muscle strains, sprains, bone fractures, open wounds, bruises, etc.) lead to an immediate stimulation of the body's natural healing and regenerative abilities. iMRS prime systems are medically approved for faster wound and bone healing. Conventional knowledge has shown for decades that the application of low-pulsed electromagnetic fields is very effective for these specific conditions. In this case, recovery times become significantly shorter – a crucial parameter in all cases, especially professional sports. Overwhelming clinical evidence and granted medical approvals support the use of PEMF treatment for expediting the healing of fractures and wounds.



**Effect:** iMRS prime applications immediately stimulate natural healing and self-regulating functions in the entire body. The system is also medically approved for the successful treatment and acceleration of healing bone fractures and open wounds!



## How iMRS prime benefits pain relief

Pain is commonly defined as a symptom of an underlying condition. Pain motivates the individual to withdraw from damaging situations, to protect a damaged body part while it heals, and to avoid similar experiences in the future. From this perspective, pain is an important indicator as it alerts the individual to be more cautious and seek the root cause. In sports, pain is a constant companion and unfortunately it is often ignored or suppressed through the use of pain medications. This can be a dangerous approach as individuals will repeatedly treat the symptom instead of addressing the underlying root cause. Inevitably, training routines become less efficient and competitions end in poor results. Many athletes are literally “stuck” in this vicious cycle. iMRS prime PEMF systems are clinically approved for pain treatment, engaging a mechanism of action that is completely different than chemical pain inhibitors. Most sport-related pain sensations are either caused by fatigue-induced or neurogenic muscle-hardening. Due to PEMF’s ability to increase circulation, the targeted muscle area immediately becomes relaxed, resulting in reduced pressure on the appropriate nerves. Pain subsides and with consistent PEMF applications chronic situations will naturally ease over time as sustainable healing occurs. PEMF treatment does not cause any adverse side effects, is non-toxic, is not doping-related and can be performed anywhere at any time.



**Effect:** PEMF application with the iMRS prime to treat acute and chronic pain is a clinically approved, effective, drug-free, safe and user-friendly treatment modality with both immediate and sustained (if applied consistently) benefits. It can be performed by anybody, anywhere and at any time!



# Mental Training – Brainwave Entrainment

Brainwave Entrainment refers to the brain's electrical response to rhythmic sensory stimulation, such as pulses of sound or light. When exposed to a stimulus through the ears, eyes or other senses, it emits an electrical charge in response, called a Cortical Evoked Response (CER). When presented with a rhythmic stimulus, such as a drum beat, the rhythm is reproduced in the brain in the form of these electrical impulses. If the rhythm becomes fast and consistent enough, it can start to resemble the natural internal rhythms, called brainwaves. The brain then responds by synchronizing its own electric cycles to the same rhythm – also called the Frequency Following Response (FFR). Further scientific exploration of brainwaves led to the discovery that electrical activity in the brain changes depending on what a person is doing:

- Beta (12hz - 38hz) - Normal waking consciousness.
- Alpha (8hz - 12hz) - Awake, but deeply relaxed.
- Theta (3hz - 8hz) - Light sleep, dreaming, REM sleep.
- Delta (0.2hz - 3hz) - Deep, dreamless sleep, trance, deep hypnosis.

## Photic Stimulation



## Audio Entrainment



## Chromotherapy



The “Exagon Brain” entrainment system, optionally available for the iMRS prime, enables you to “train your brain”, synchronizing its own prevailing frequencies to external stimuli. Special goggles with built-in RGB-LEDs and the option to connect to earphones, all controlled by the operating panel of the iMRS prime, will emit a combination of rhythmic sound, light and color stimuli to “tune” your own brainwaves to a desired state. A brainwave entrainment session with the iMRS prime can be performed with a PEMF application simultaneously. This treatment regime saves time and increases effectivity due to the accumulation of individual stimuli.

**Effect:** “Exagon Brain” entrainment is a very simple and yet complex approach to active guidance into different mind states. Depending on the applied patterns, the mental state can be directed towards concentration, wakefulness and clear consciousness, or deep relaxation, meditation and sleep. Brainwave entrainment represents an extremely valuable tool for athletes in all sports!

The logo for Exagon Brain, featuring the word "EXAGON" in a stylized font with a blue hexagon to the left, and the word "BRAIN" in a smaller font below it.

EXAGON  
BRAIN



# HRV Monitoring with



Heart rate variability (HRV) is an accurate method to assess autonomic nervous system function. Thus, HRV analysis is widely used in different applications including (but not limited to) health science research, stress and wellbeing (including occupational stress) studies, and exercise and recovery monitoring. Heart Rate (HR) is the number of heart beats per minute. Heart Rate Variability (HRV) is the fluctuation in the time intervals between adjacent heartbeats. HRV is concerned with analyzing the intervals between heart beats, which are called inter-beat intervals (IBIs). The iMRS prime system together with the optionally available Exagon Sense dynamically regulates the applied field intensity subject to the variation of the user's HRV during the application.



The iMRS prime system records treatment data, which can be downloaded and utilized for further analysis. The data format is 100% compatible with the opensource HRV software called “Kubios”. Kubios is the market leader in HRV analysis software for scientific research and professional use. Kubios HRV Standard is a freeware program for non-commercial, personal use, developed by an experienced team of medical physicists from Kuopio, Finland. The first version of Kubios HRV was released in 2004 and the software has since been used in over 800 scientific studies to date. Exagon Sense in combination with Kubios can be used to observe and assess the autonomic nervous system and evaluate improvements together with iMRS prime applications over time. HRV in sports is already widely used as a reliable and medically-acknowledged parameter to evaluate adaptation and recovery status, as well as stress and fatigue of elite athletes.

**Effect:** Heart Rate Variability is not only a recognized clinical parameter, but it also allows one to measure, analyze and evaluate the reaction of a PEMF user and correspondingly adjust intensity levels of the applied magnetic field dynamically. In addition, recorded data can be downloaded and further utilized with external software solutions. Athletes can apply these analyses to better focus on modifying recovery, adaptation, stress and fatigue!

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**Advice and Guidance:**



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